

TCM-747

US Model
Canadian Model



CASSETTE-CORDER

SPECIFICATIONS

Recording System: 2-track 1-channel monaural
Fast Winding Time: Approx. 2 min. with Sony Cassette C-60
Frequency Response: 90–8,000 Hz
Speaker: Approx. 7.7 cm (3 inches) dia.
Power Output: 800 mW (at 10% harmonic distortion) at dc operation
Input: Microphone input jack (minijack) sensitivity 0.775 mV (–60 dB) for low impedance microphone
Output: Speaker output jack (minijack) for 8 Ω earphone or load impedance 10 k Ω or higher or for 4 Ω to 8 Ω impedance speaker
Other Jack: Remote control jack

Power Requirements: 6 V dc, four batteries IEC designation R14 (size C)
120 V ac, 60 Hz with supplied AC Power Adaptor AC-9W (US model) or AC-9 (Canadian model)
12 V car battery with optional Sony DCC-127A Car Battery Cord
Power Consumption: 6 W (60 Hz) with Sony AC-9 or AC-9W AC Power Adaptor
Battery Life: Approx. 17 hours of continuous recording with the Built-in microphone using Eveready Heavy Duty Batteries No. 1235
Dimensions: Approx. 134 (w) x 59 (h) x 223 (d) mm
5 $\frac{3}{8}$ (w) x 2 $\frac{3}{8}$ (h) x 8 $\frac{7}{8}$ (d) inches incl. projecting parts and controls with the Carrying Handle retracted
Weight: Approx. 1.2 kg (2 lb 11 oz) incl. batteries

Tape Transport
Mechanism Type

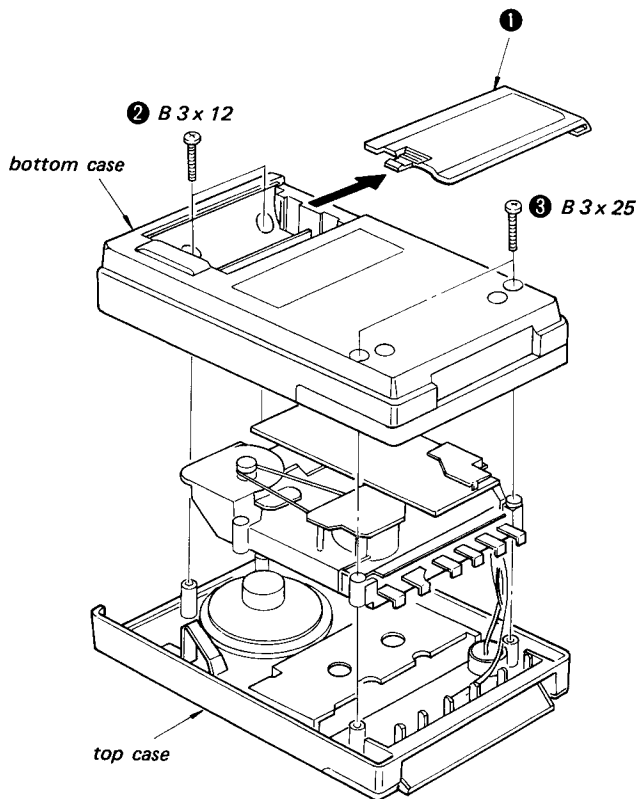
MDS-30H1

SONY
SERVICE MANUAL

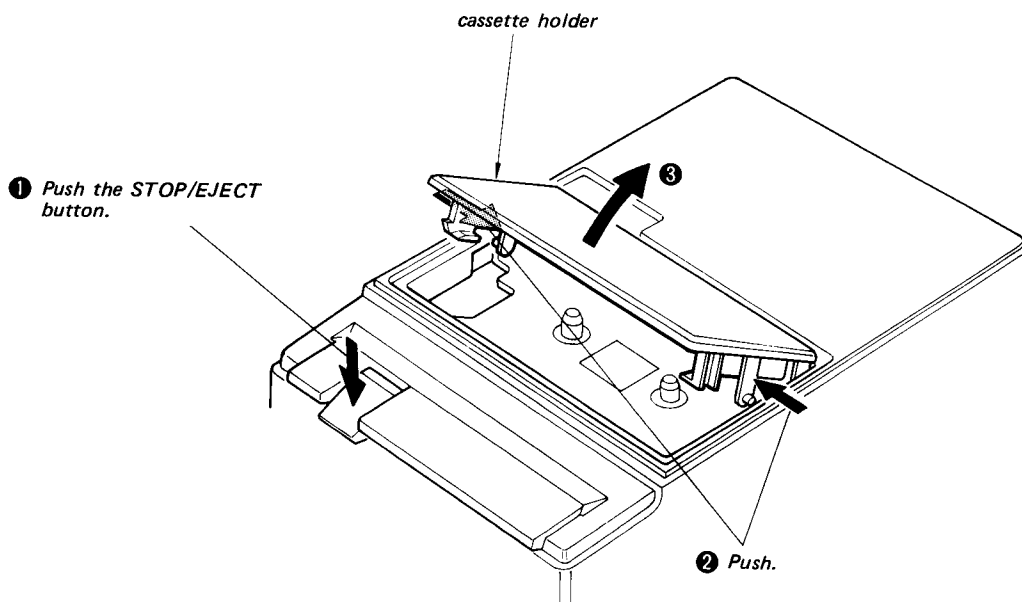
SECTION 1 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

TOP CASE REMOVAL



CASSETTE HOLDER REMOVAL



SECTION 2

ADJUSTMENTS

PRECAUTION

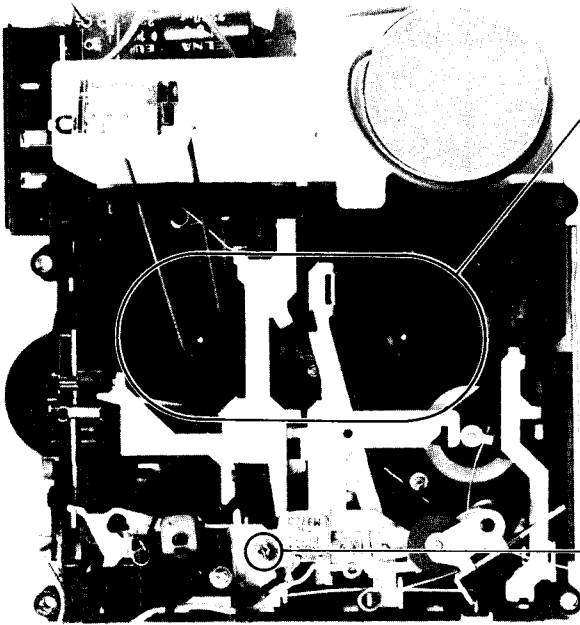
1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
Forward	CQ-102C	24–60 g · cm (0.34–0.83 oz · inch)
Fast Forward	CQ-201B	more than 75 g · cm (more than 1.05 oz · inch)
Rewind	CQ-201B	more than 65 g · cm (more than 0.91 oz · inch)
Tape Pulling Force	CQ-403	more than 150 g (more than 6 oz)

If the tape pulling force is less than 150 g (6 oz), increase the pinch roller pressure or change the pinch roller.



Record/playback Head Azimuth Adjustment

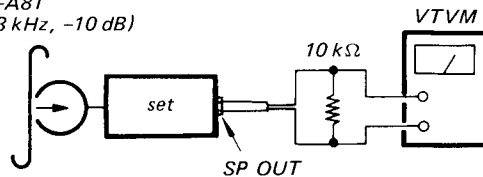
Setting:

VOLUME control: mechanical mid

Procedure:

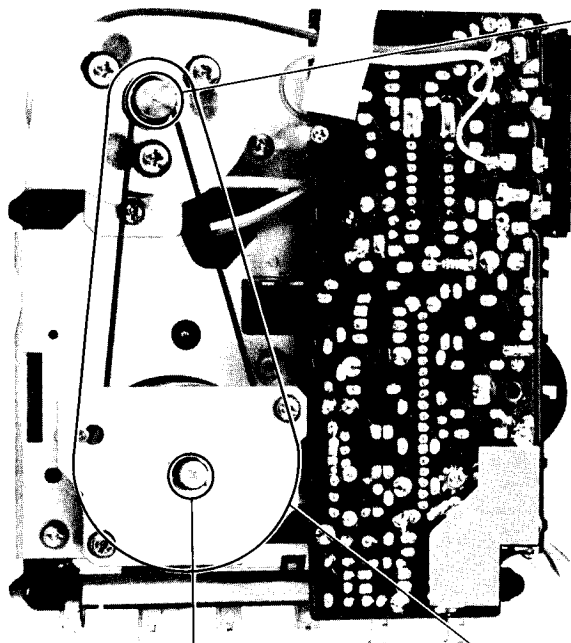
1. Mode: playback

test tape
P-4-A81
(6.3 kHz, -10 dB)



2. Turn the adjustment screw for maximum VTVM reading.

Note: Several peaks may appear, but take the maximum.



Tape Speed Adjustment

Setting:

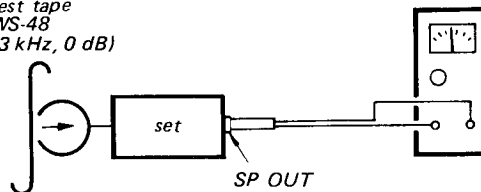
VOLUME control: mechanical mid

Procedure:

Mode: playback

speed checker
LFM-30
or
digital frequency
counter

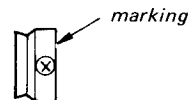
test tape
WS-48
(3 kHz, 0 dB)



Specification:

Speed checker	Digital frequency counter
-1.5 to +2	2,955 to 3,060 Hz

If necessary, replace the motor pulley.

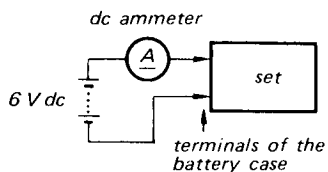


Motor pulley Part No.	Marking	Tape speed change
X-3570-020-2	A	slower
X-3570-020-1	C	↕
X-3570-020-3	E	faster

Note: Perform the motor pulley height adjustment.

Flywheel Thrust Play Adjustment

— Playback Mode —



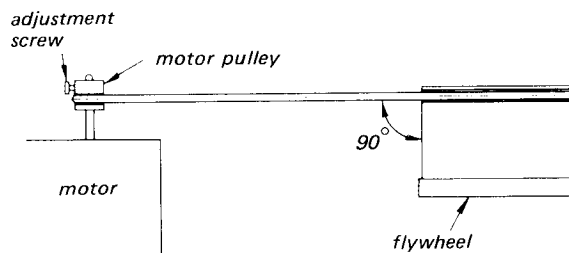
1. Turn the thrust screw counterclockwise until the screw tip leaves from the flywheel shaft.
2. Gradually turn the thrust screw clockwise to the position where the motor current suddenly increases.
3. Then, turn the thrust screw counterclockwise about 1/4 turn from the position obtained in step 2.

Motor Pulley Height Adjustment

Perform this adjustment, after replacing the motor pulley or the flywheel.

Procedure:

1. Keep the set horizontal.
2. Adjust the motor pulley height so that the drive belt is straight without a twist.



A

B

C

D

3-2. SCHEMATIC DIAGRAM

1

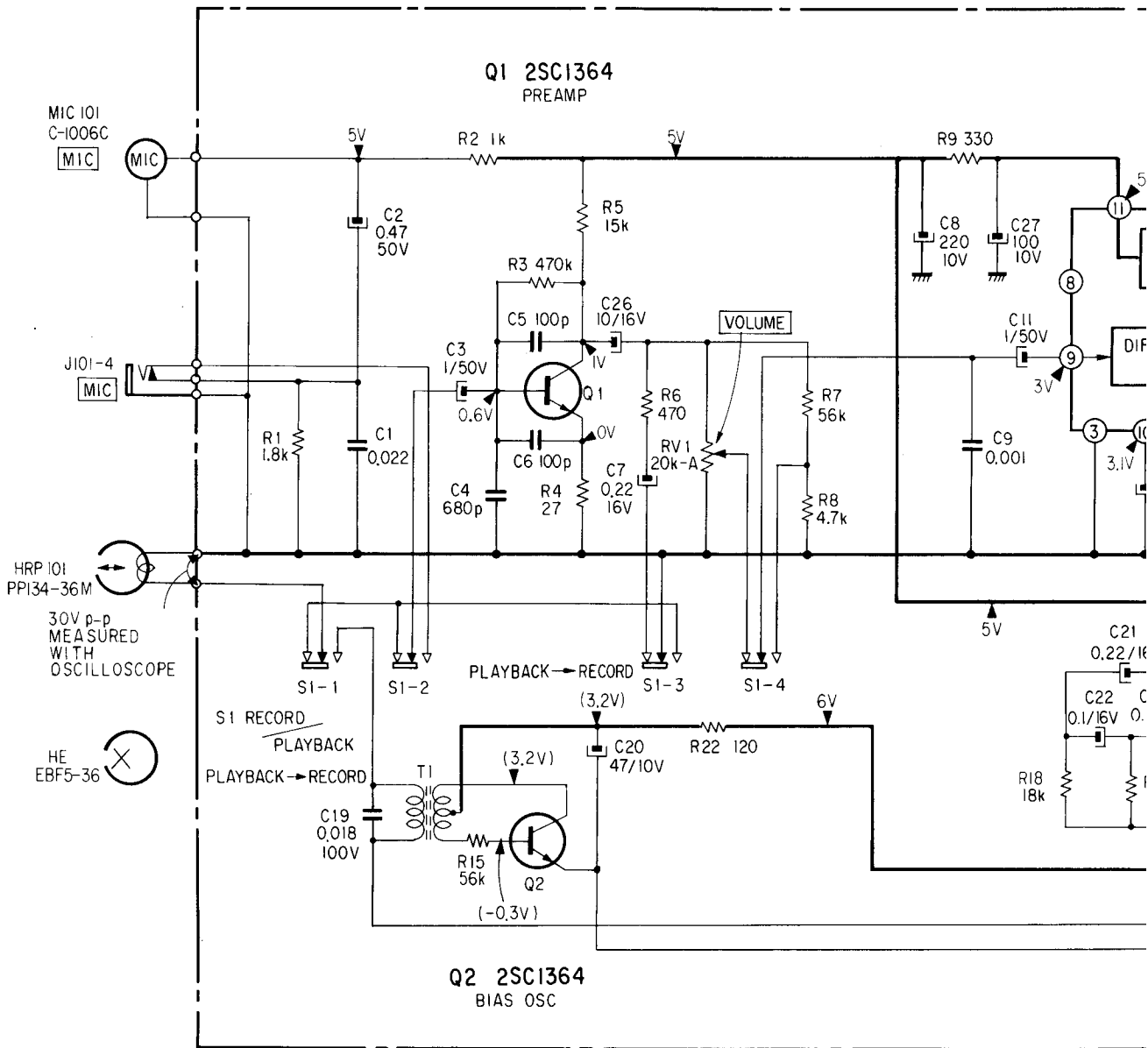
[AUDIO AMP BOARD]

2

3

4

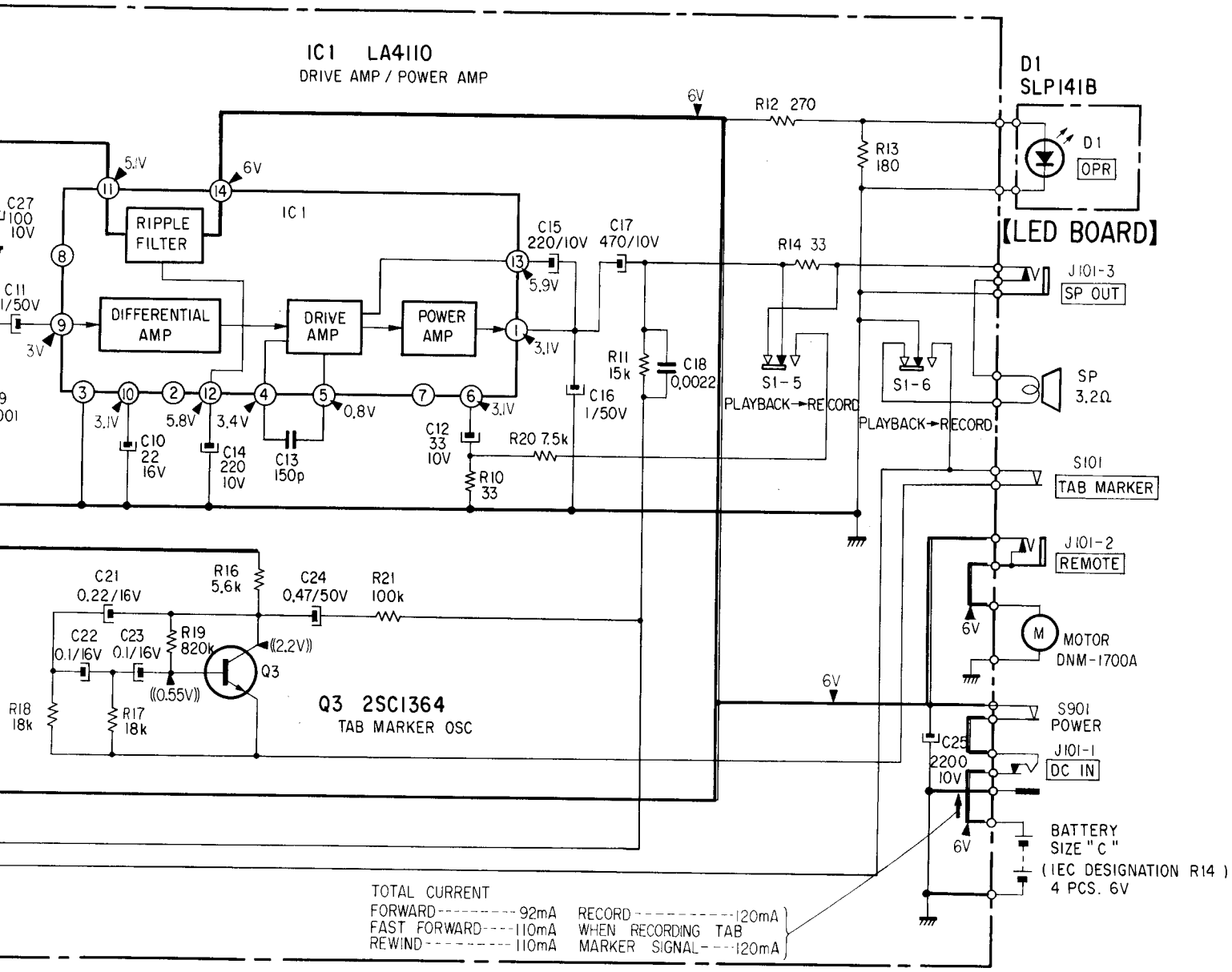
5



Note:

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$
- 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, $\frac{1}{4}$ W unless otherwise noted. $\text{k}\Omega$: 1000 Ω , $\text{M}\Omega$: 1000 $\text{k}\Omega$
- — : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (20 $\text{k}\Omega/\text{V}$).
- () : RECORD MODE
- (()) : When recording TAB MARKER signal
- Voltage variations may be noted due to normal production tolerances.
- Total current is measured with no cassette installed.

D E F G H



ions with a
nal
mal produc-
installed.

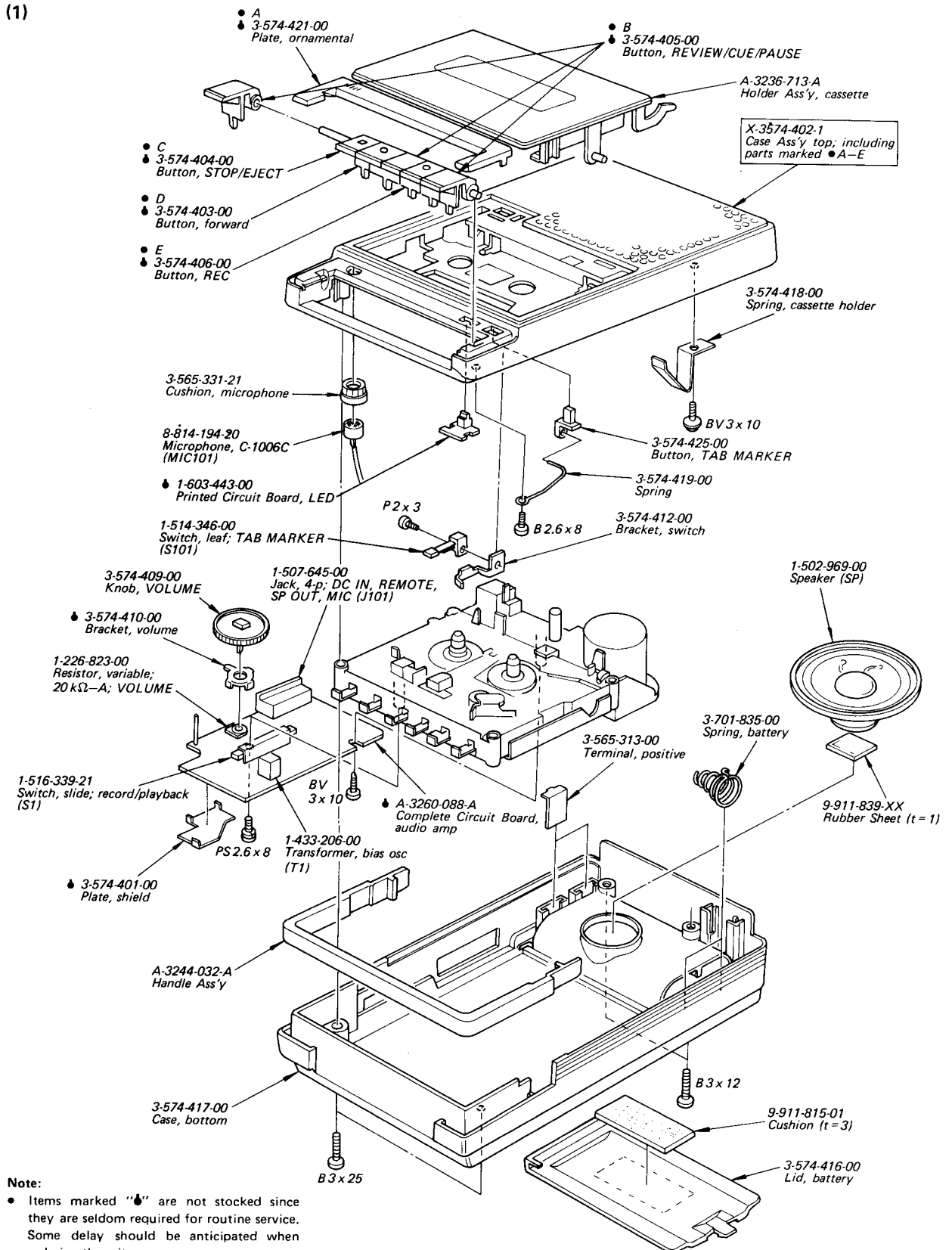
**SECTION 4
EXPLODED VIEWS**

A

B

C

D



- Note:**
- Items marked "●" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
 - All screws are Phillips (cross recess) type unless otherwise noted.
(-) = slotted head
 - (□□T) shows the number of coils in spring.

A

B

C

D

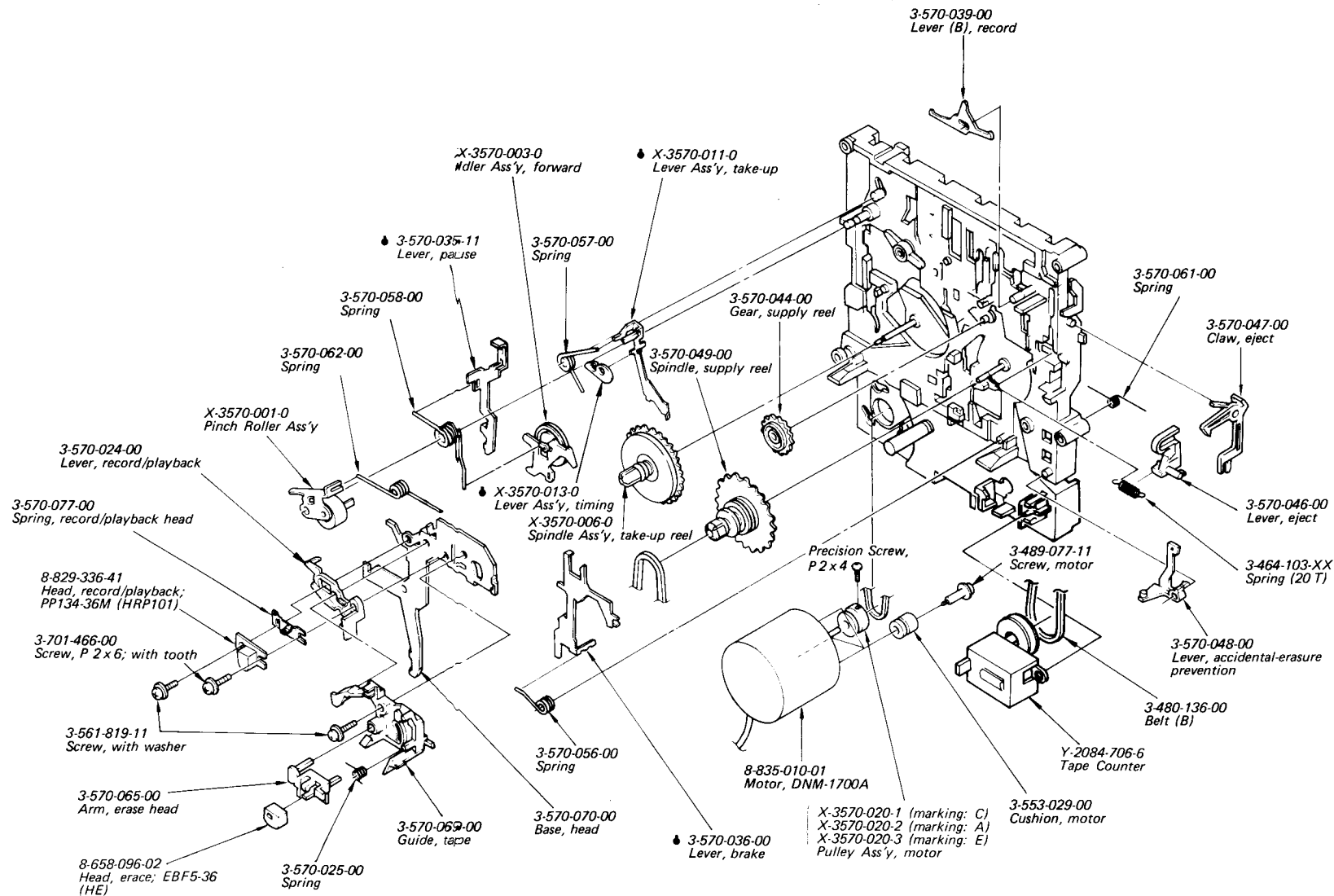
E

(2)

1

2

3



A

B

C

D

E

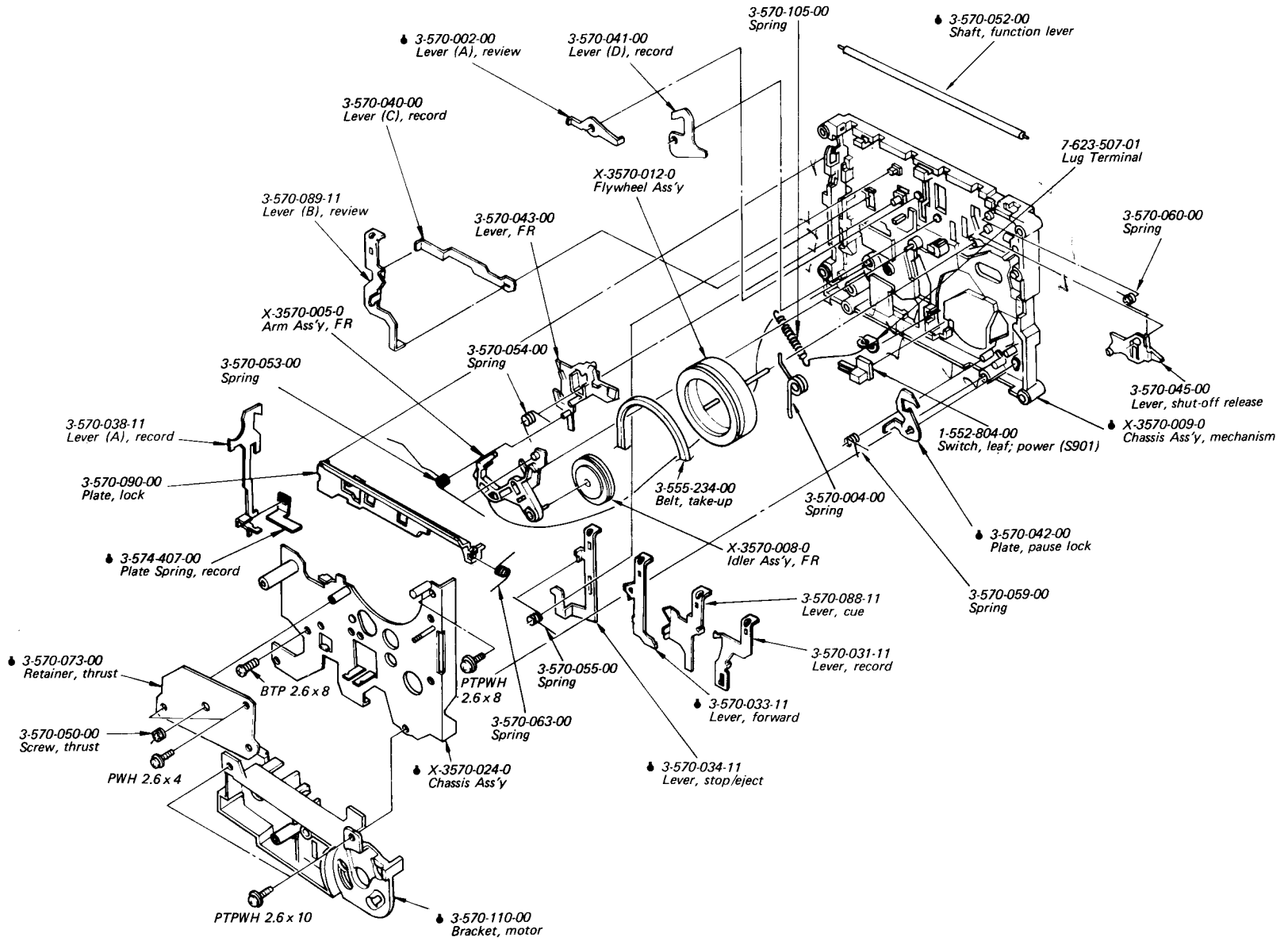
(3)

1

2

3

4



SECTION 5 ELECTRICAL PARTS LIST

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			
SEMICONDUCTORS					
Transistors					
Q1-3	8-729-663-47	2SC1364			
IC					
IC1	8-759-841-10	LA4110			
Diode					
D1	8-719-900-41	SLP141B			
CAPACITORS					
All capacitors are in μ F and ceramic unless otherwise noted.					
50 WV or less are not indicated except for electrolytic and tantalums.					
p: μ F, elect: electrolytic					
C1	1-161-494-00	0.022			
C2	1-123-351-00	0.47	50 V	elect	
C3	1-123-352-00	1	50 V	elect	
C4	1-161-321-00	680 p			
C5,6	1-161-271-00	100 p			
C7	1-131-404-00	0.22	16 V	tantalum	
C8	1-123-308-00	220	10 V	elect	
C9	1-161-323-00	0.001			
C10	1-123-317-00	22	16 V	elect	
C11	1-123-352-00	1	50 V	elect	
C12	1-123-305-00	33	10 V	elect	
C13	1-161-313-00	150 P			
C14,15	1-123-308-00	220	10 V	elect	
C16	1-123-352-00	1	50 V	elect	
C17	1-123-310-00	470	10 V	elect	
C18	1-161-326-00	0.0022			
C19	1-108-380-00	0.018	100 V	mylar	
C20	1-123-306-00	47	10 V	elect	
C21	1-131-404-00	0.22	16 V	tantalum	
C22,23	1-131-402-00	0.1	16 V	tantalum	
C24	1-123-351-00	0.47	50 V	elect	
C25	1-123-312-00	2,200	10 V	elect	

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			
C26	1-123-316-00	10	16 V	elect	
C27	1-123-307-00	100	10 V	elect	
RESISTORS					
Common $\frac{1}{4}$ W carbon resistors are omitted.					
Refer to the list on the last page for their part numbers.					
RV1	1-226-823-00	20 k Ω -A, variable; VOLUME			
MISCELLANEOUS					
HE	8-658-096-02	Head, erase; EBF5-36			
HRP101	8-829-336-41	Head, record/playback; PP134-36M			
J101	1-507-645-00	Jack, 4-p; DC IN, REMOTE, SP OUT, MIC			
MIC101	8-814-194-20	Microphone, C-1006C			
S1	1-516-399-21	Switch, slide; record/playback			
S101	1-514-346-00	Switch, leaf; TAB MARKER			
S901	1-552-804-00	Switch, leaf; power			
SP	1-502-969-00	Speaker			
T1	1-433-206-00	Transformer, bias OSC			
	8-835-010-01	Motor, DNM-1700A			
COMPLETE CIRCUIT BOARD					
	● A-3260-088-A	Audio Amp			
PLINTED CIRCUIT BOARD					
	● 1-603-443-00	LED			
● Items marked "●" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.					

ACCESSORIES AND PACKING MATERIALS

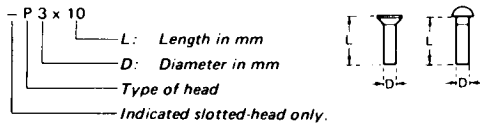
<u>Part No.</u>	<u>Description</u>
1-463-138-00	Adaptor, ac; AC-9W (US model)
1-463-806-00	Adaptor, ac; AC-9 (Canadian model)
3-546-434-00	Bag, plastic
3-574-428-00	Cushion
3-574-433-00	Case, accessories
3-574-434-00	Carton
3-701-625-00	Bag, plastic
3-783-309-21	Manual, instruction (US model)
3-783-309-21	Manual, instruction (Canadian model)
3-794-953-31	
3-793-828-11	Card, cassette caution
8-890-236-10	Tape, LNX-30 (Canadian model)

1/4 WATT CARBON RESISTORS

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

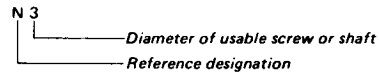
HARDWARE NOMENCLATURE

Screw:



Indicated slotted-head only.
Unless otherwise indicated, it means cross-recessed head (Phillips type).

Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazer-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

Sony Corporation

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